IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently Amended) A method for manufacturing a ~~surface alloyed~~ cylindrical, partly cylindrical or hollow cylindrical surface-alloyed structural member where an energy beam having a linear ~~radiation area, hereinafter called a linear~~ focus~~,~~ is directed onto a workpiece surface of a workpiece being moved in front of said energy beam to form a zone of incidence on said workpiece surface wherein ~~whereby~~ the workpiece surface is melted and ~~a hard material or alloy~~ silicon powder is fed into the molten surface, ~~characterised in that~~, said method comprising:

a) forming a locally bounded melting bath in the zone of incidence of the energy beam, ~~there is formed a locally bounded~~ the-melting bath having ~~with~~ a heating front, ~~and~~ a melting front, a solution zone and a solidification front,

b) depositing the silicon powder at the side of the energy beam ~~the hard material powder is deposited~~ via a conveyor device in the direction of gravity and supplying said silicon powder ~~is supplied co-ordinated~~ in coordination with the feed movement of the workpiece in a width which corresponds to the width of the linear focus and producing thereby a layer of silicon powder having a height of 0.3 - 3 mm ~~is thereby produced~~,

c) heating the ~~hard material~~ silicon powder supplied to the workpiece surface in the heating front of the melting bath ~~is heated by an~~ with the energy beam at a wavelength of 780 - 940 nm

and thereby dissolving in the melting bath the silicon powder which is in contact with the liquefied matrix alloy ~~the powder is immediately dissolved in the melting bath~~,

d) producing convection ~~is produced~~ in the solution zone ~~by~~ with the energy beam having a specific power of at least 10^4 W/cm^2, so that the ~~homogenisation~~ homogenization process in the melting ~~zone~~ bath is accelerated,

e) ~~where~~ wherein the linear focus acts on the solution zone until the ~~hard material~~ silicon powder is uniformly distributed in the melting bath,

f) subjecting the uniformly distributed silicon powder ~~material~~ in front of the energy beam, which has gone into solution metallurgically in the solution zone, ~~is subjected~~ to directional solidification in the solidification front at a ~~high~~ cooling rate of 200 - 600 K/sec wherein the workpiece is moved at a feed rate of 500 - 10,000 mm/min.

Claim 2. (Currently Amended) The method according to ~~Claim~~ claim 1, ~~characterised in that~~ wherein the ~~hard material~~ silicon powder in process steps b) - f) ~~is~~ comprises silicon powder with a grain diameter of 40 - 90 μm.

Claim 3. (Currently Amended) The method according to ~~Claim~~ claim 1, ~~characterised in that~~ further comprising splitting the energy beam ~~is split~~ before the zone of incidence with the workpiece surface into a first part beam and a second part beam, where wherein the ~~a~~ first part beam is deflected into the heating ~~zone~~ front and melting ~~zone~~ bath and a second part beam is deflected behind the solidification front after the first part beam for thermal structural treatment.

Claim 4. (Currently Amended) The method according to ~~Claim~~ claim 3 ~~characterised in that~~ wherein the second part beam is directed behind the solidification front onto the workpiece surface at a specific power of < 1 kW/mm^2 to control ~~the~~ formation of a precipitation structure in the surface-alloyed structural member.

Claim 5. (Currently Amended) The method according to ~~Claim~~ claim 2 ~~characterised in that~~ wherein the ~~time of action of the~~ energy beam dissolves and homogeneously distributes ~~in the melting bath for dissolving and homogeneously distributing~~ primary precipitated Si phases in the melting bath ~~is~~ between 0.01 and 1 second.

Claim 6. (Currently Amended) The method according to ~~Claim~~ claim 1, ~~characterised in that~~ comprising using a ≥3 kW diode laser with a variable optical system to adjust the linear focal width of 4 - 15 mm ~~is used~~ to form the energy beam.

Claim 7. (Currently Amended) The method according to ~~Claim~~ claim 1, ~~characterised in that~~ comprising reducing the linear focal width of the energy beam transverse to the feed direction before the beginning and at the end of ~~coating~~ alloying ~~the linear focal width of the energy beam and the quantity of powder is reduced transverse to the feed direction~~.

Claim 8. (Currently Amended) The method according to ~~Claim~~ claim 1, ~~characterised in that~~ wherein the workpiece comprises ~~is constructed as~~ a hollow cylinder ~~and rotates~~ which is ~~about the energy beam~~ positioned so that its longitudinal axis is transverse to the direction of

gravity and which is rotated about said ~~in the downhand position~~ longitudinal axis during the ~~coating~~ alloying, ~~whereby~~ wherein the energy beam which is held in a fixed position relative to the direction of rotation, ~~achieves~~ performs a continuous feed movement during the rotation in the direction of the axis of rotation to produce a flat alloying zone.

Claim 9. (Currently Amended) The method according to ~~Claim~~ claim 1 ~~characterised in that~~ wherein at the beginning of alloying, the energy beam focal spot has a point structure and continually increases in size together with the quantity of powder until it has reached the complete linear focal width after a rotation of the workpiece.

Claim 10. (Currently Amended) The method according to ~~Claim~~ claim 1 ~~characterised in that~~ comprising continually reducing to zero the linear focal width and the quantity of powder at the end of the alloying during the last rotation of the workpiece ~~the linear focal width and the quantity of powder are continuously reduced to zero~~.

Claim 11. (Currently Amended) The method according to ~~Claim~~ claim 1 ~~characterised in that~~ comprising treating along the longitudinal axis at a depth of up to 200 mm a hollow cylinder made of Al or Mg alloys having a bore diameter of 60 - 120 mm ~~is treated~~.

Claim 12. (Currently Amended) A device for implementing the method of claim 1, ~~consisting of~~ comprising:

a workpiece clamping device ~~(1)~~, on which a hollow cylindrical workpiece is aligned and clamped via ~~above~~ index holes ~~and/~~or via ~~above~~ working surfaces, ~~onto whose surface~~

a powder supply ~~(5)~~ and a focusable beam from a beam head ~~(4)~~ ~~are~~ directed onto the surface of said workpiece to be alloyed, ~~characterised by~~ wherein an energy beam and powder supply device are inserted into ~~an~~ the longitudinal axis of the cylinder, ~~where~~ and the energy beam is directed at an angle ±a = 0 - 45° to the gravity vector as a linear focus onto the workpiece rotating in ~~the downhand~~ a position such that its longitudinal axis is transverse to the direction of gravity ~~at an angle a = 0 - 45° to the gravity vector~~.

Claim 13. (Currently Amended) The device according to ~~Claim~~ claim 12, ~~characterised in that~~ wherein several energy beam units staggered relative to one another are directed onto the working surface of the workpiece rotating in ~~the downhand~~ a position such that its longitudinal axis is transverse to the direction of gravity, where the energy beam units ~~(8b, 8a)~~ sweep the working surfaces one after the other and rectilinearly like tracks.

Claim 14. (Currently Amended) The device according to ~~Claim 1~~ claim 13 ~~characterised in that~~ wherein the energy beam units ~~next to one another~~ staggered relative to one another sweep several lines of the working surface simultaneously. ~~if necessary with several powder supply devices~~.

Claim 15. (Currently Amended) The device according to ~~Claim 1~~ claim 12, ~~characterised in that~~ comprising the energy beam unit ~~is~~ being located in a fixed position relative to the direction of rotation inside the rotatable workpiece clamping device connected to a drive unit, ~~where~~ wherein the energy beam is directed from ~~the~~ an energy beam head onto the workpiece surface, and ~~that~~ the powder supply device is located beside the energy beam device.

Claim 16. (Currently Amended) The device according to ~~Claim 1~~ claim 12, ~~characterised in that~~ wherein the powder is blown onto surface facing the beam either in ~~the~~ a direction opposite to the feed direction through the beam into the melting zone or is sprinkled loosely in the direction of gravity before or in the melting ~~zone~~ bath in front of the energy beam.

Claim 17. (Currently Amended) The device according to ~~Claim 1~~ claim 12, ~~characterised in that~~ wherein the drive unit for the workpiece makes it possible to achieve a variable rotation speed where the feed direction of the energy beam device and the powder supply in the direction of the axis of rotation are combined with the rotation speed of the workpiece to achieve spiral or other geometrical guidance of the linear focus onto the workpiece surface.

Claim 18. (Currently Amended) Engine blocks made with the ~~The~~ device ~~according to~~ of ~~Claim 1~~ claim 12, ~~especially for engine blocks, consisting of~~ comprising:

a rotatable clamping device ~~(1)~~ for a cylinder block ~~(2)~~,

a laser treatment unit ~~(3)~~ with a beam head ~~(4)~~, which is connected to a powder supply device ~~(5)~~, and

a transfer unit which positions the cylinder block ~~(2)~~ in front of the laser beam treatment unit ~~(3)~~ and a drive ~~(6)~~ to move the transfer unit along a transfer axis ~~(10)~~, ~~characterised in that~~ wherein the clamping plane of the clamping device ~~(1)~~ is aligned perpendicular to the beam direction of the laser unit ~~(3)~~, ~~that~~ the laser unit ~~(3)~~ ~~can be displaced perpendicular~~ is

displaceable perpendicularly to the clamping plane of the clamping device ~~(1)~~ where the beam direction is perpendicular to the transfer axis ~~(10)~~ at an angle ±a = 0 to 45° to the gravity vector, ~~that~~ and wherein the powder supply device ~~(5)~~ either opens directly in the beam direction of the laser unit ~~(3)~~ or ~~(seen in the feed direction)~~ shortly before the beam incidence zone ~~(12)~~.

Claim 19. (Currently Amended) The device according to ~~Claim 1~~ claim 12, ~~characterised in that~~ wherein a laser treatment unit ~~(3) consists of~~ comprises several beam devices which ~~can be~~ are insertable in a cylinder bore ~~whereby~~ wherein several working surfaces are arranged on the cylinder wall ~~(seen in the direction of the cylinder axis)~~.

Claim 20. (Currently Amended) The device according to ~~Claim 1~~ claim 12, ~~characterised in that~~ wherein the powder supply device ~~(5)~~ consists of several feed devices which can be inserted in a cylinder bore ~~where the~~ with their feed openings ~~are~~ arranged one behind the other ~~(seen in the direction of the cylinder axis)~~.

Claim 21. (Currently Amended) The device according to ~~Claim 1~~ claim 12, ~~characterised in that~~ wherein the powder supply device ~~consists~~ comprises ~~of~~ a screw conveyor, a conveyor belt or a vibrating conveyor chute.

Claim 22. (New) The device according to claim 13, wherein the energy beam units staggered relative to one another sweep several lines of the working surface simultaneously with several powder supply devices.